

# CLASS COPY DO NOT WRITE ON OR REMOVE

## Length and Mass Lab; Pre-AP

Complete on a separate sheet of paper titled appropriately.

1. How much does each one equal?

(a) 1 m = \_\_\_\_\_ cm      (b) 1 cm = \_\_\_\_\_ mm      (c) 1 km = \_\_\_\_\_ m

3. Which measurement is the largest? Circle your answer for each pair.

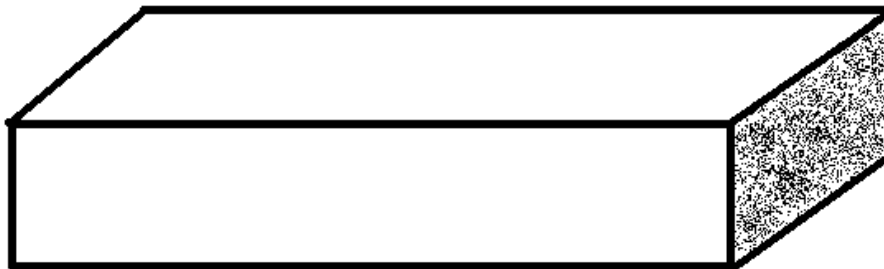
- |                   |                      |
|-------------------|----------------------|
| (a) 14 mm or 1 cm | (d) 145 m or 145 km  |
| (b) 334 m or 1 km | (e) 3.4 cm or 30 mm  |
| (c) 1 m or 990 cm | (f) 10 km or 1000 cm |

**HINT: If it says “nearest”, you need to round your answer so you don’t have a decimal point. If not, you should have one decimal point in your answer.**

4. Use a metric ruler or meter to find each measurement.

- (a) Length of the line in centimeters \_\_\_\_\_  
(b) Length of the line to the **nearest** centimeter \_\_\_\_\_

- \_\_\_\_\_  
(c) Height of the rectangle to the **nearest** millimeter \_\_\_\_\_  
(d) Width of the rectangle to the **nearest** millimeter \_\_\_\_\_

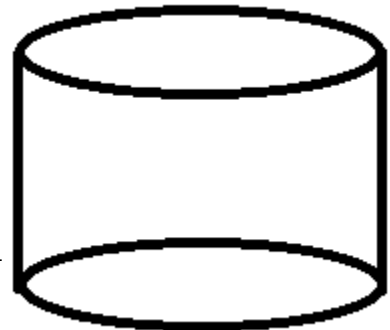


(e) Volume of the box in cubic centimeters ( $\text{cm}^3$ )

\_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

**(Measure to the nearest centimeter before multiplying.)**

- (f) Radius of the circle to the nearest millimeter \_\_\_\_\_  
(g) Diameter of the circle in centimeters \_\_\_\_\_  
(h) Volume of cylinder to **nearest** cubic centimeter \_\_\_\_\_



5. Find the distance between the fume hood and the east exit door in meters. \_\_\_\_\_

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6. Use your shoe and a metric ruler to complete this section. Keep your shoes on for this one, please! :0

- (a) What is the length of your shoe to the nearest centimeter? \_\_\_\_\_
- (b) How many shoes would it take (heel to toe) to make 1 meter? \_\_\_\_\_
- (c) How many shoes would it take to make 1 kilometer? \_\_\_\_\_

7. Use ten (10) pennies and a metric ruler to complete this section.

- (a) How tall is a stack of ten pennies in centimeters? \_\_\_\_\_
- (b) How tall would a stack of 100 pennies be in centimeters? \_\_\_\_\_
- (c) How tall would a stack of 1000 pennies be in centimeters? \_\_\_\_\_

8. Identify the BEST metric unit for each.

- (a) The length of an eyelash: mm cm m km
- (b) The height of a flagpole: mm cm m km
- (c) The length of a strand of spaghetti: mm cm m km
- (d) The distance from Phoenix, AZ, to Tucson, AZ: mm cm m km

## MASS

**Make sure the scale is reading in “g” NOT “oz”.**

9. At Station “Mass #1”, you will weigh three (3) of the five (5) objects one (1) at a time on the scale and record the mass **and** what the object is.

- a)
- b)
- c)

10. At station “Mass #2”: Make sure the scale is reading in “g” NOT “oz”.

- I. Place an empty weigh boat on the scale
- II. Press the “Zero” or “Tare” button and wait until the scale reads “0.0g”
- III. You will use a scoopula to transfer the specified amount of substance to the weigh boat to the specified mass in grams  
Weigh out 1.5g of compound A using the scoopula. When you have finished dump the compound in the weigh boat into the waste bin labeled “Compound A”
- IV. Convert 1.5 g to mg and to kg using dimensional analysis.

11. Go outside and using a meterstick measure from exit sign to exit sign in meters and cm. Convert the cm to meters and give your answer to one decimal place in meters.

12. Estimate the width of this paper in cm, using your pinkie.

13. Estimate the length of this paper in dm, using your hand.

14. Estimate the width of the classroom in meters.

15. Using information from the article, previous learnings, and the lab, write a few paragraphs persuading the US government to use the metric system by describing 3 or more advantages of the metric system over the standard system.

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